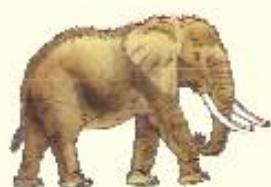


REPRODUCTION IN ORGANISM (ANIMALS)

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- ✓ Reproduction – biological process in which an organism gives rise to young ones (offspring) similar to itself
- ✓ It is a means of perpetuation
- ✓ Enables continuity of species, generation after generation
- ✓ Life span – period from birth to natural death of an organism, character of species
- ✓ Life expectancy (average life span) - character of population, increasing due to decreasing mortality rate
- ✓ In India – 67 years
- ✓ Life spans of some organisms



Elephant(____)



Rose (____)



Dog (____)



Butter fly (1-2 weeks)



Crow (15 years)



Banana tree (____)



Cow (____)



Parrot (140 years)



Crocodile (60 years)



Horse (____)



Fruit fly (____)



Rice plant (____)



Tortoise (100-150 years)



Banyan tree (____)

Figure 1.1 Approximate life spans of some organisms

Life span of some organisms –

1. Elephant - 70 yr.
2. Rose - 5-7 yr.
3. Dog - 20-25 yr.
4. Banana tree - 25 yr.
5. Cow - 25 yr.
6. Horse - 50-60yr.
7. Fruit Fly - 1 month
8. Rice plant - 4 months
9. Banyan tree - 200-400 yr.

Stages of life span –

1. Birth
2. Juvenile phase – non-reproducing growing phase, called vegetative phase in plants
3. Reproductive phase
4. Ageing
5. Senescence/old age – changes like slowing of metabolism etc
6. Death- Inevitable except single celled organisms reproducing by binary fission (immortal)
 - ✓ Life span of organisms are not correlated with their sizes e.g.-crows and parrots, mango and peepal tree

Basic features of reproduction-

1. DNA replication
2. Cell division
3. Growth of cell protoplasm
4. Formation of reproductive units
5. Formation of new individual

Note:- Hydra – interstitial cells (totipotent)

Planaria – neoblast cells

Sponges – archaeocyte

Key Events

- Meiosis
- Fertilization

Types of Reproduction

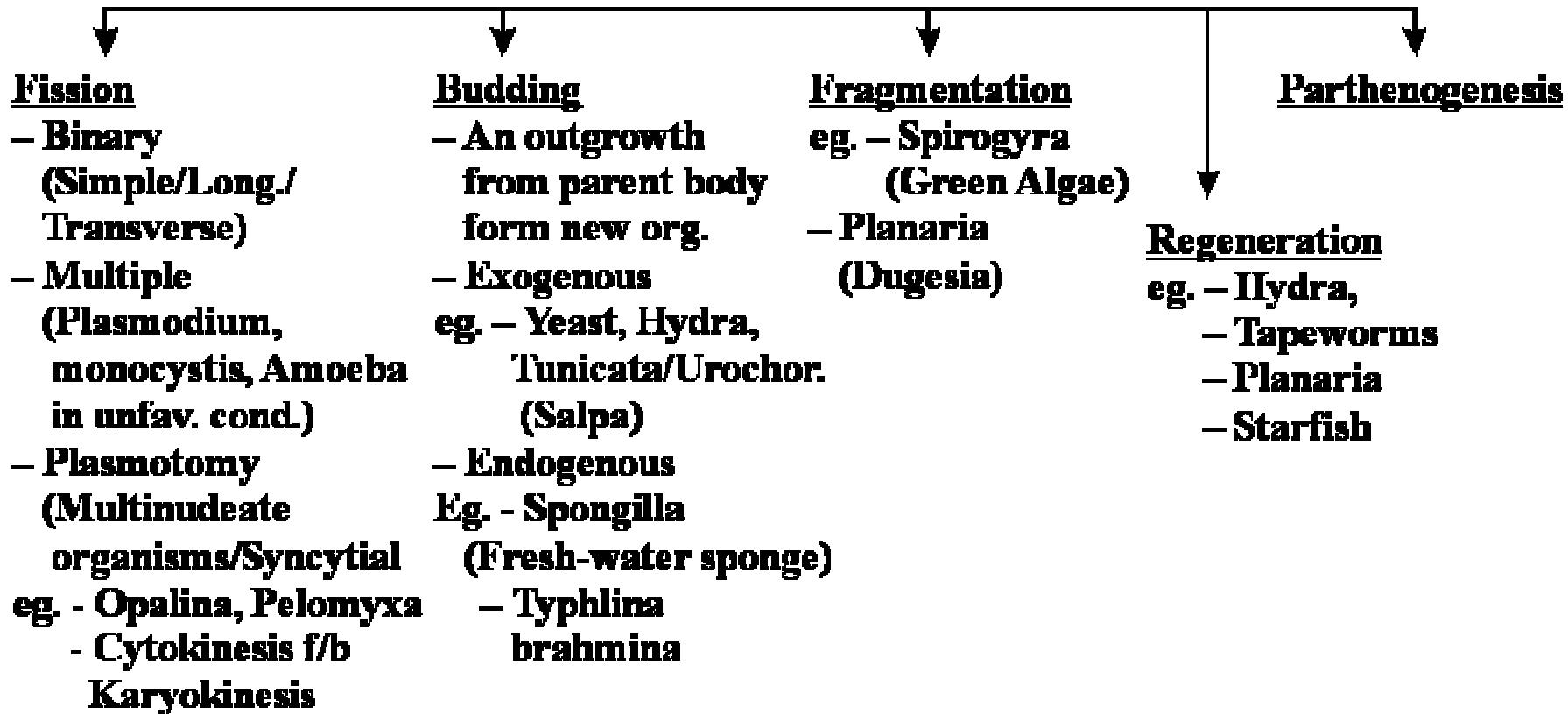
Asexual

- Agamogeny/Agamogenesis/
Somatogenesis
- Uniparental
- Gametes may form but no
fertilization
- Only mitosis, No. meiosis
- Offsprings morphologically &
Genetically Identical to parents &
each other (clones)
- No variations
- No Role in Evolution
- Simple & Fast process
- In Fav. Conditions

Sexual

- Amphimixis
- Always biparental
- Gametes formed & fused by
fertilization
- Mitosis & meiosis both occurs
- –
- Variations occur
- Role in Evolution
- Complicated & slow process
- In unfav. conditions

Types of Asexual Reproduction



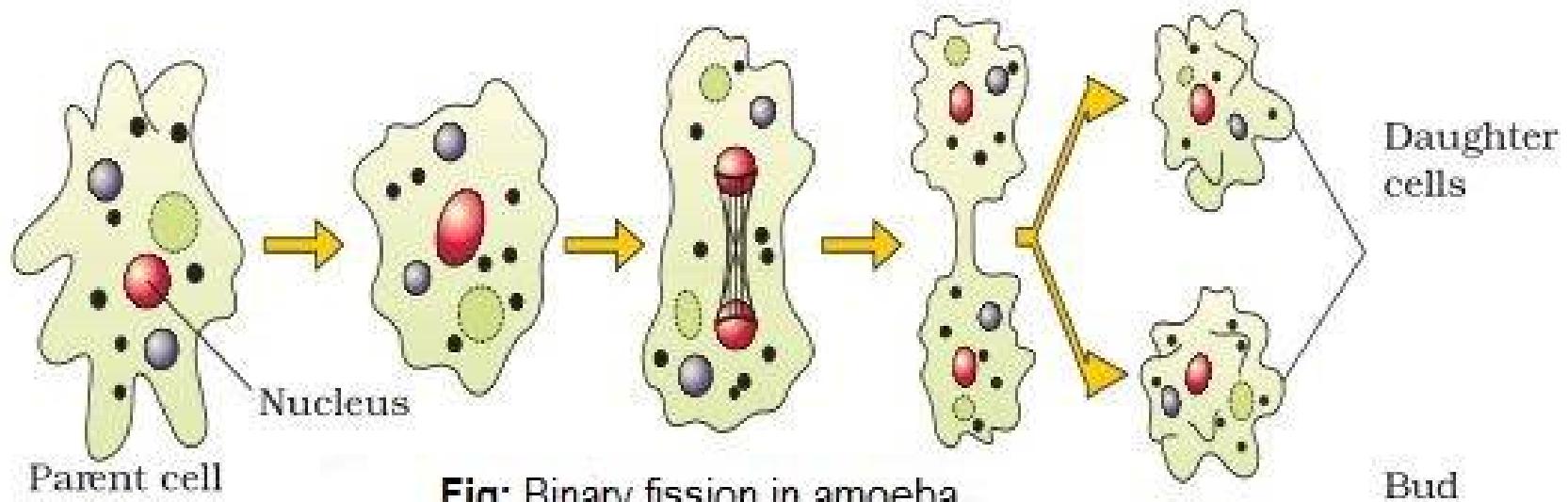


Fig: Binary fission in amoeba

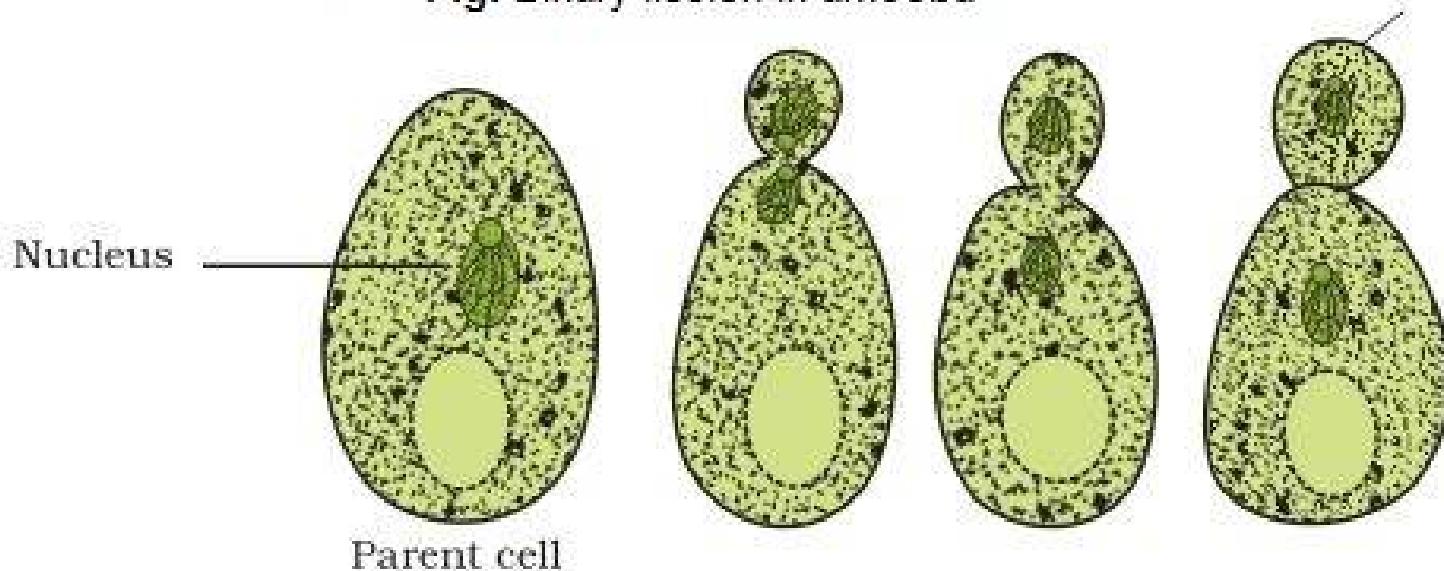
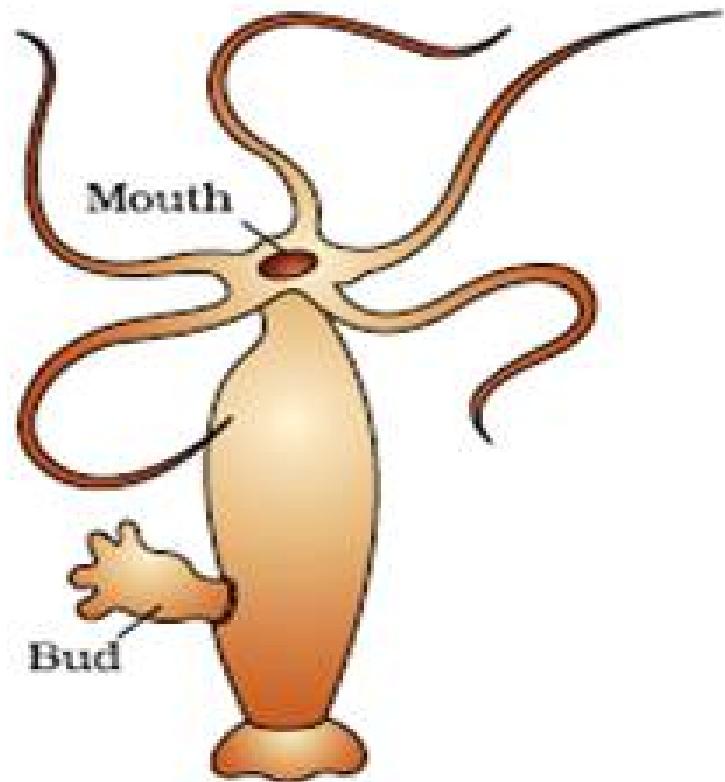
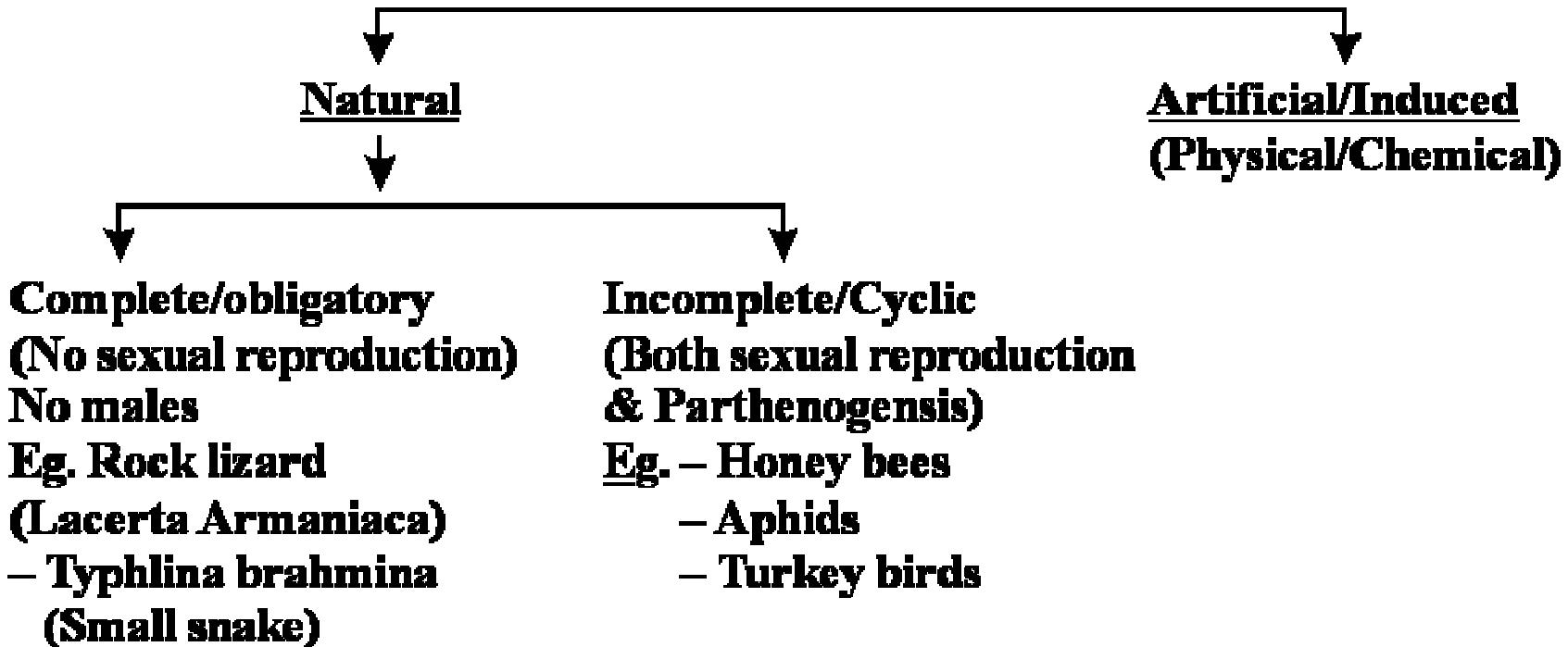


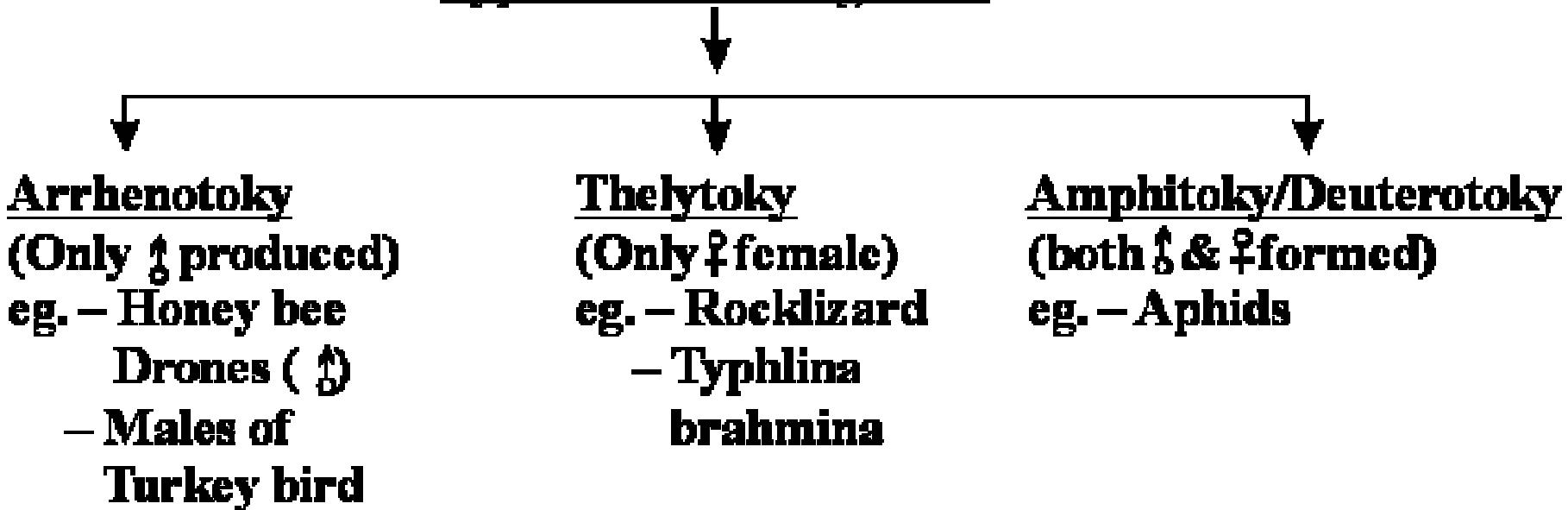
Fig: Budding in yeast



Types of Parthenogenesis



Types of Parthenogenesis



➤ **Parthenogenesis – virgin birth**

- ✓ A type of asexual reproduction
- ✓ Formation of embryo/new individual from unfertilized egg/ ovum.

Note:- Honeybee

- ✓ Males – produced by parthenogenesis
- ✓ Females (queen and worker bees) - produced by sexual reproduction
- ✓ Males – haploid
- ✓ Females- diploid
- ✓ Male – produce sperms by mitosis
- ✓ Queen bee – produce eggs by meiosis
- ✓ Worker bee – sterile

Sexual reproduction:

- ✓ 2 key events – meiosis (for gamete formation), fertilization (for zygote formation)

1. Pre-fertilization events – gametogenesis and gamete transfer

- ✓ Gametogenesis – formation of 2 types of gametes – male and female (haploid cells)
 1. Homogamete /isogamete – e.g. monocystis
 2. Heterogamete (oogamy) – sperm and ovum/egg
- ✓ Unisexual animal – e.g. vertebrates, cockroach etc
- ✓ Bisexual /hermaphrodites – e.g. sponge, tapeworm, leach, earthworms etc
- ✓ Transfer of gamete

2. Fertilization/syngamy – fusion of gametes
 - ✓ External – e.g. frogs, bony fishes etc.
 - ✓ Disadvantage – offsprings are extremely vulnerable to predators, threatening their survival upto adulthood
 - ✓ Internal – e.g. reptiles, birds, mammals etc
 - ✓ Male gamete is motile and reach egg to fuse with it
 - ✓ Number of sperms produced very large, significant reduction in number of eggs produced

3. Post-fertilization events (after zygote formation):

- ✓ Zygote – diploid, universal in all sexually reproducing organisms
- ✓ Vital link that insures continuity of species between organisms of one generation and the next
- ✓ Every sexually reproducing organism, begins life as a single cell – zygote
- ✓ Cleavage
- ✓ Embryogenesis – development of embryo from zygote (cell division, mitosis and cell differentiation)

On Basis of Devel of Embryo



Oviparous

- lay unfertilized eggs
(Ext. rest)
eg. : Amphibians
- Lay fertilized eggs
with egg yolk,
covered by hard
calcareous shell
eg. : Birds, Reptiles

Viviparous

- birth to mature young
ones nutrition
through placenta
eg. : True placental
mammals

Ovo-viviparous

- birth to immature
young ones
- Marsupials
- Rattle snakes
(Viper snake)
- Sharks (some)